**Parameter Table of DDEs Model**

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| parameter | Description | Value | dimensions |
| copynumpRMH120 | copy number of plasmid pRMH120 | 14~19 |  |
| copynumpZS3 | copy number of plasmid pZS3 | 12~17 |  |
| trc1 | rate of mCRY2\_BD transcription | 4.25E+00 | nM/h |
| trc2 | rate of mCIB1\_AD transcription | 7.82E+00 | nM/h |
| trc3 | rate of mRox1 transcription | 3.95E+00 | nM/h |
| trc4 | rate of mRox1 basic transcription | 4.5E-01 | nM/h |
| trl1 | rate of CRY2\_BD translation | 8.31E+00 | 1/nM\*h |
| trl2 | rate of CIB1\_AD translation | 6.65E+00 | 1/nM\*h |
| trl3 | rate of Rox1 translation | 7.82E+01 | 1/nM\*h |
| trl4 | rate of Si\_Tag translation | 2.57E+01 | 1/nM\*h |
| trl5 | rate of Mcfp-3 translation | 3.12E+01 | 1/nM\*h |
| trf1 | rate of photoactivation of CRY2\_BD | 4.96E-03 | m2/um |
| trf-1 | rate of photoinactivation of CRY2\_BD | 3.55E-05 | m2/um |
| trf2 | rate of photoactivation of CIB1\_AD | 7.44E-04 | m2/um |
| trf-2 | rate of photoinactivation of CIB1\_AD | 1.70E-03 | m2/um |
| trlc1 | translocation rate of Si\_Tag to membrane | 1.37E+01 | nM/h |
| trlc2 | translocation rate of Mcfp-3 to extracellular | 1.52E+01 | nM/h |
| deg1 | rate of mCRY2\_BD degradation | 3(12min) | 1/h |
| deg2 | rate of CRY2\_BD degradation | 0.8(48min) | 1/h |
| deg3 | rate of mCIB1\_AD degradation | 3(13min) | 1/h |
| deg4 | rate of CIB1\_AD degradation | 0.8(48min) | 1/h |
| deg5 | rate of mRox1 degradation | 4(13min) | 1/h |
| deg6 | rate of Rox1 degradation | 0.6(48min) | 1/h |
| deg7 | rate of mSi\_Tag degradation | 5(13min) | 1/h |
| deg8 | rate of Si\_Tag degradation | 0.3(48min) | 1/h |
| deg9 | rate of mMcfp-3 degradation | 2(12min) | 1/h |
| deg10 | rate of Mcfp-3 degradation | 0.2(48min) | 1/h |
| km1 | apparent association constant for CRY2\_BD binding with UAS | 4.93E+00 | nM |
| km2 | apparent association constant for CIB1\_AD binding with CRY2\_BD | 1.04E+00 | nM |
| km3 | apparent association constant for Rxo1 binding with promoter panb1 | 1.47E+01 | nM |
| Vmax | maximum transcription rate of promoter pAnb1 without the repression of protein Rox1 | 2.94E+01 | nM/h |
| τ1 | time for AD activating promoter pGal1 | 11 | min |
| τ2 | time for Rox1 binding with promoter panb1 | 1 | min |

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| y1 | mCRY2\_BD |
| y2 | CRY2\_BD |
| y3 | (active)CRY2\_BD |
| y4 | mCIB1\_AD |
| y5 | CIB1\_AD |
| y6 | (active)CIB1\_AD |
|  | UAS\_BD\_CRY2 |
|  | UAS\_BD\_CRY2\_CIB1 |
| y7 | mRox1 |
| y8 | Rox1 |
| y9 | mSi\_Tag |
| y10 | Si\_Tag |
| y11 | OuterSi\_Tag |
| y12 | mMcfp-3 |
| y13 | Mcfp-3 |
| y14 | outerMcfp-3 |